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The girls here studied are influenced primarily in their development by home conditions. Dire poverty, showing in a high infant mortality, shows even more in the lowered vitality of the girls, in "ignorance, immorality, drinking, filth, degradation" at home. Not so much delinquency as "frustrated and dwarfed development" is the difficulty in the case of the girls. A sympathetic and valuable analysis of the psychology of this type of girls is here contributed. A chapter on the Italian girl brings out the closer kinship bonds in this group and their restraint upon the girl as well as the gradual loosening of the bonds under American influences.

These studies do not attempt to recommend solutions of the problems they analyze. But they do bring out, both implicitly and explicitly, the intricacy of these facts and the failure of our governmental, social, and educational agencies to deal adequately with them. For example, improvement of dance halls does not offset the influence of home and street for the girls. The court has failed even to deal adequately with its individual cases, much less make any constructive or permanent effect upon the neighborhood. Unfortunately, while truancy and the failure of the school law are discussed at some length, the relation of the course of study in detail to the needs of these boys and girls is not discussed.

The volume contains full appendices with tables and discussion of the economic condition of the families.

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First-Year Mathematics for Secondary Schools. By ERNST R. BRESLICH.

Chicago: The University of Chicago Press, 1915. Pp. xvii+344.
\$1.00.

The problem of the reconstruction of the secondary-school course in mathematics has been the subject of experimentation in the School of Education of the University of Chicago for many years. No one alive to the situation questions the importance of the problem or the value of this experimentation under test conditions in one of our great educational institutions. The result of this study, a course in fusion mathematics by Ernst R. Breslich, the first volume of which has just appeared from the University of Chicago Press, will command the attention of teachers of mathematics and educators generally. The book, which provides the material for the first year's work in high-school mathematics, is one of the most valuable contributions that have been made in recent years to the remaking and reworking of the traditional subject-matter of education to meet the demands of the age for practicality and psychologic organization. While some of the recent texts in algebra and geometry have added some new material and make slight changes in arrangement, we have in Mr. Breslich's book a bold and fearless attempt at radical reorganization. We feel, as we read it, that in the movement to correlate mathematics, begun

by Professor Myers and now carried forward by Mr. Breslich, we have something worth while and something sure to have a widespread effect in shaping high-school curricula.

As in the first edition of *Secondary Mathematics* by Professor Myers, of which book it is a revision, the simpler facts of algebra, geometry, and trigonometry are presented in their relationships to each other. But it departs in one important respect from the lead of the older book and from established custom in that geometry instead of algebra is stressed in the work of the first year. To the teacher saddened by his failure to secure the initial interest of fourteen-year-old boys and girls in a subject beginning with a treatment of "algebraic processes and expressions," the first chapter of Mr. Breslich's book is a revelation and a joy, providing as it does something to do with ruler and pencil. It may, however, be questioned whether, with so little knowledge of function, the graphic representation of scientific data and their interpretation may not be too difficult for the beginner.

The concept of the function is, however, not here emphasized and the material here is a genetic background for it later. After acquainting the pupil with the usual geometric instruments the rest of the first chapter, containing only 14 pages in all, gives him the mathematical ways of expressing facts about quantity. These ways include the arithmetical, the algebraic, and the graphical or geometric. The exercises employed are vital and modern, not the stereotyped. As with all chapters, at the end of the first chapter there is a tersely stated one-page summary of the essential teachings of the chapter. This is to assist the teacher in supplying a notable lack in American mathematical teaching of frequent synoptical résumés of unities of work covered.

The second chapter, which, with its summary, is 15 pages long, includes graphic and algebraic addition and subtraction, treated together, the former as a space background for the latter, and gives a sufficient treatment of the symbols of aggregation. In this chapter are taught the essential axioms and laws of number, the equation, and a considerable body of geometrical properties and laws of polygons—and it is done without the suggestion of forced correlation. Everything given seems to belong there by right of its power to function there.

Chap. iii, of a dozen pages, is a graphic and unusually attractive discussion of the equation as a tool for solving problems. The problems used are stimulating to boys and girls.

Then comes an 18 page chapter about angles, their geometrical properties and laws, and the application of the equation in deriving principles.

A highly commendable feature is that the equation and the graph both pervade the entire book, and are readily seen to be unifying threads of the year's work.

Space limitations prevent us from detailing further the specific points of merit of the book, and even from giving the chapter headings. The book throughout impresses the critical reader as the text of an actual high-school

teacher, by an actual high-school teacher, for actual high-school pupils and teachers. Nor can one doubt that it is a genuine product of carefully digested classroom experience.

Throughout, an appeal is made to the child's experience. The language, the simple explanation of mathematical terms, the excellent descriptions given of the tools to be used, are all to be commended. A very wise feature is the use of the intuitive proof before the formal proof is given. The portraits and the brief accounts of the lives of the great mathematicians of history give interest as the appeal to the human side, so seldom made in the mathematical classroom, always will. The provision made in the concluding chapter for a complete and systematic review is excellent. The lack of thorough synoptic reviews has been one of the greatest weaknesses of our mathematical instruction.

Perhaps, however, the best feature of the book is in the line of method. There is a conscious effort throughout to help the pupil in his study, to show him, not only the fact, but its importance and how to master it.

Very few school texts are more in harmony with the latest and best in educational theory and practice. It is safe to predict that hereafter fusion mathematics will at least be considered wherever there is an attempt being made to conform to progressive ideas in school administration.

The text is singularly free from typographical errors. The typography and mechanics of the book are a credit to the University Press and furnish a high standard for other textbook firms.

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